

# The Cary Arboretum



of The New York Botanical Garden

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## Willard Payne Accepts Position in Cleveland

Dr. Willard W. Payne, Arboretum Director since 1977, has accepted the position of Director of The Garden Center of Greater Cleveland, effective August 1.

As Director, Dr. Payne will supervise planning, program development and management of the Garden Center. His goals for the organization include increasing the visibility of the organization, increasing the membership (already nearly 4,000) and continuing development of the Center's education and research programs.

The Garden Center of Greater Cleveland is part of the University Circle Complex. The group includes nine organizations dedicated to scientific research, the arts, sciences, social service, and religion. A partial list of these includes The Garden Center, The Institute of Art, The Health Education Museum, The Museum of Natural History, The New Gallery of Contemporary Art, Howard Dittrick Museum of Historical Medicine, Severance Hall, home of the Cleveland Symphony, and the Crawford Auto Aviation Museum.

The Garden Center of Greater Cleveland, located between Lake Erie and Case Western Reserve University, houses an outstanding horticultural library education and display facilities, and is surrounded by gardens with

medicinal, Japanese, and herbal themes. A reading garden and rose garden are also located on the grounds.

Dr. Payne, who received his Master's degree in 1957 from the Ohio University at Athens, intends to redevelop relationships with several Ohio Universities where he will pursue research in plant systematics and other related fields.

"Dr. Payne has done an excellent job over the past six years of bringing the Cary Arboretum to its present state of development," said New York Botanical Garden President Dr. James Hester. "Under his leadership, the Arboretum has become an increasingly dynamic and useful institution, preparing it for its future role as a highly integrated scientific and educational center focused on ecosystem studies. He and his wife June have won the respect and affection of us all and will be greatly missed."

Dr. Gene E. Likens of Cornell University will assume leadership of the Cary Arboretum effective September 1. Internationally recognized for his research on biogeochemistry of natural systems, Dr. Likens will also hold the post of Director of the Institute of Ecosystem Studies and Vice President of the New York Botanical Garden.

## College Students at the Arboretum: Providing Time, Talent and Genuine Enthusiasm

Michael Fargione is one of 15 college students engaged in research projects at the Arboretum this summer one whose time and efforts will contribute significant data to the scientific community. His research over the next several months continues a two-year project he began in January, 1982 to study life cycles of the American Kestrel (*Falco sparverius* L.), the smallest falcon in North America.

His research tools are not the traditional type; a 24-foot ladder, binoculars and numerous nesting boxes are among the most important ingredients in his "outdoor laboratory" which encompasses the 2,000-acre Arboretum and neighboring property owned by Oakleigh B. Thorne.

In a progress report submitted to the University of Massachusetts Department of Zoology, Amherst, he described his first year of research as the stepping-stone to a complete understanding of the American Kestrel's breeding behavior and ecological requirements that "will allow us to better understand the species' role in the ecosystem." The long-range plan for the study, which is being supervised by Arboretum Wildlife Ecologist Jay McAninch, is to effectively manage the species for economic and ecological purposes.

Involved in the study are 23 nesting sites in open fields, along hedgerows and on woodlot edges. Kestrel food quality requirements, mortality rates and choice of hunting areas were studied during the 1982 field season. This summer, research on the competitors and predators that reduce Kestrel productivity are being investigated in an effort to

## Active Solar System Removed from Plant Science Building

by Robin Parow-Place

The Cary Arboretum's Plant Science Building, a pioneering venture in active solar and energy-conserving design, has undergone changes to make it more energy efficient and cost-effective.

In preparation for the inauguration of a new scientific and educational program this fall, an in-depth mechanical and solar system evaluation of the building was conducted this spring by architects and engineers of the

Ehrenkrantz Group and Syska and Hennessy, both of New York City.

The report concluded that the major problems with the building's active system are as follows: 1. Difficulty and expense in dissipating unusable heat produced by the solar collectors during the summer months. Heat rejection systems were considered and tried. It was apparent that low-cost heat rejection

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# Library News

by Betsy Calvin, Librarian

## New Books in the Circulating Collection

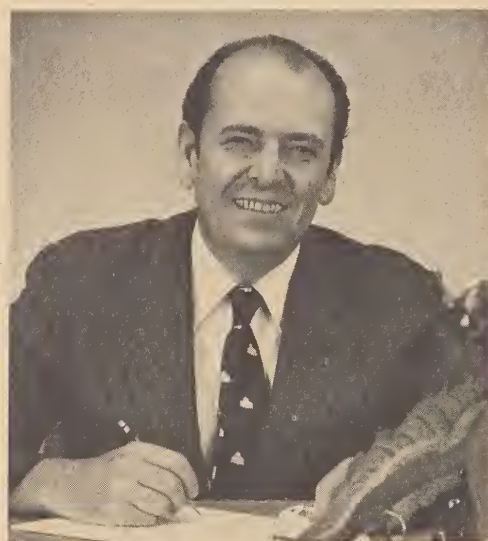
The gardening season is in full swing, and there are some new gardening books in the Circulating Collection for our Members. One of the most interesting is *Wildlife in Your Garden* by Gene Logsdon (Rodale), a how-to book that emphasizes how to peacefully coexist and prosper with wild animals as an alternative to eliminating them. The first 60 pages deals with wildlife controls with an emphasis on proper fencing; the rest of the 268 pages outline appropriate environmental conditions around the garden to attract birds, butterflies, beneficial snakes, spiders and other creatures. I found the book to be very informative and well written.

Another very good planning book for the gardener is *The Self-Sufficient Suburban Garden* by Jeff Ball (Rodale). Advice is given for planning a highly productive garden within the confines of an average backyard. Besides discussing garden management, the author includes chapters on extending the growing season, growing fruits and nuts, keeping small livestock and using the home computer to better manage your food production. There is a good annotated bibliography at the end, as well as an appendix, that includes seed suppliers and planting guides.

I found *Feasting on Raw Foods* by Charles Gerras (Rodale) to be full of good recipes for utilizing fresh vegetables and fruits. It incorporates some wild food; however it is not exclusively a wild edible foods cookbook. The recipes provide cooler alternatives in the summer for meal preparation.

# Director's Notes

by Dr. Willard W. Payne



Every institution goes through phases, just as all organisms and living systems do. It has been my pleasure to serve as Director of the Cary Arboretum during a six-year period that might be characterized as the growth phase from infancy to youth. In this time, we have all watched the physical plant develop, the roadsides and plantings mature, the principal buildings take shape, and the programs grow.

The changing landscape has been a special source of pleasure, with gardens and trails and display beds yearly increasing in beauty. As I write these lines, in early June, the Siberian irises outside the door of the Plant Science Building are of astonishing brilliance, color, and height, and the *Stewartia* trees, true botanical marvels, are about to bloom. One's heart swells with joy just to touch and see them.

It is in the development of fine programs that one takes greatest pride. In education we

now have literally hundreds of college and university students, budding horticulturists, serious friends interested in career improvement, and adults, youths, and children eager to stretch their minds and talents, attending classes here each year. The plant acquisitions program, centering on introduction of useful and novel species from temperate Asia, is the envy of botanical gardens everywhere and has already thrust the Cary Arboretum into prominence throughout the Americas, Asia, and Europe. Our international consultancy on matters of serious scientific, ecological, and agricultural importance has earned praise from and the respect of many cultures, government agencies, and organizations concerned for the future of mankind and for economic developments by means of which better futures can be realized. The search for knowledge (i.e., science) has been exceedingly successful and rewarding and has helped garner renown and funds, both very substantial, from a properly demanding and cautious society.

The greatest pleasure, however, comes from the many friends the institution as a whole and we have made in this region and in the local community. Working with us, you have made the growth possible, through financial support, through thousands of volunteer hours donated annually, and through your good wishes, manifest in numerous ways.

And so the Cary Arboretum finds itself at an exciting crossroad, ready to move from youth into maturity as a world center for ecosystems study. Part of the change appropriate for this step into the future is for the old Director to make way for the new. When you read these words, June and I will have moved on to an exciting job as Director of the Garden Center of Greater Cleveland, in Ohio. There we shall find new challenges, new friends, and wonderful new sources of pride and pleasure. But we leave with hearts full for the need to turn away and leave this splendid place and you behind.

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## Solar System Removed

Continued from page 1

systems such as aluminum foil and greenhouse shading compound were labor intensive; thus their overall cost was very high. Similarly, systems requiring minimal labor to install were significantly high in price, such as aluminum siding or other heat-reflecting devices capable of being used for more than one summer season. 2. Expenses involved in maintaining an annual service contract for a computer designed to operate the active solar system. Annual cost: \$7,700. 3. The considerable expenses involved in replacing antifreeze solutions, fiberglass hoses and in removing unanticipated corrosion from distribution piping in the collectors. Current prices for replacing the collectors' antifreeze solution and proper disposal of the solution, which is a toxic waste, is \$2,070. These costs would be incurred every three years for the life of the system. In addition, every four to five years, fiberglass hoses which feed the antifreeze solution into the collectors should be replaced, along with the clamps that secure them. Total cost: \$4,644. Removal of corrosion from the distribution piping resulting from an unpredicted flaw in the system would cost approximately 240 man-hours to complete. 4. The labor expense in supervising the computer

to insure the system's reliability. This includes daily monitoring, balancing and adjusting of the computer.

The estimated gross expense of installing a more cost-effective solar system is \$75,000-\$100,000. This would involve relocating the hot water storage tanks, which together hold 28,000 gallons, and devising and implementing a shading system that would in the long run be economical. Total estimated cost to replace the active system with propane boilers is \$36,000. These boilers will not only sufficiently heat the 31,000-square-foot structure, but will produce adequate heat for planned extensions to the Plant Science Building. It is estimated that Arboretum operating expenses will be decreased by \$15,000 during the first year the propane system is used, and that the propane boilers will pay for themselves in less than two years. "Without the building's extraordinary passive system, such savings could never be realized," commented Winfried Schubert, Arboretum Coordinator of Operations. "The passive features have far surpassed our original expectations." Two-thirds underground and highly insulated, it was noted during its first winter of operation that when night

temperatures dipped below 0°F., the building, which is not heated at night, only dropped two or three degrees in temperature. "This building is an excellent example of passive design," added Mr. Schubert.

When heated with propane, a clean-burning domestic fuel (current statistics provided by the National Liquified Petroleum Gas Association state that 85% of all propane used in the U.S. is produced in this country), the building will be cost effective, and the dollars spent to heat it will support a domestically-produced product.

"The Plant Science Building will continue to be an extraordinary structure," said New York Botanical Garden President Dr. James Hester. "We will continue to explore ways of heating and cooling it that are technically and economically sound."



# At The Garden

A cool oasis can be found this summer at The New York Botanical Garden in the Bronx where a "Tropical Paradise" is on display through September 5 in the beautiful Enid A. Haupt Conservatory. Featured will be foliage and flowering plants native to the tropical areas of the world, including palms, large cycads, crotons and false aralias. Of special interest will be a special exhibit of assorted varieties of flowering begonias and over one thousand variegated caladiums against the backdrop of a three-tiered pool.

Outdoors, the herb and rock gardens, annual borders and wild flower meadow (part of the Native Plant Garden) will be at their best during July and August, and will add to the delight of visiting The New York Botanical Garden.

The grounds of The New York Botanical Garden are open daily, 8 a.m. to 7 p.m.; the Enid A. Haupt Conservatory is open Tuesday through Sunday, 10 a.m. to 4 p.m. Members of the Arboretum are admitted free to the Conservatory, and Wednesday is "Free Day," when the general public is also admitted without charge.

## College Students At The Arboretum

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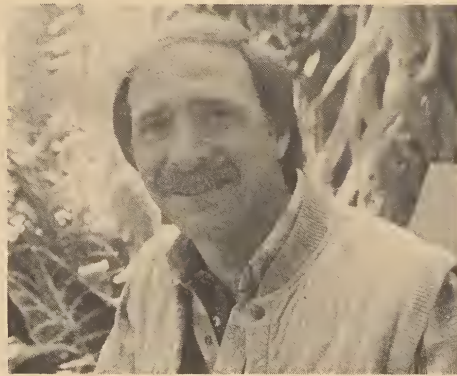
*Michael Fargione holds a two-day-old American Kestrel. His research this summer continues a two-year study he began in 1982 to band, observe and collect data on the species in order to better understand its habits and life cycles. Photo: Robin Parow-Place.*

maximize Kestrel breeding in a variety of habitats.

The American Kestrel is a prolific bird with a high mortality rate due to predators and toxic contaminants. In fact, this species is an excellent barometer of environmental quality. Aesthetically, it is a favorite among bird-watchers; its barred red back, blue wings and red tail tipped with a black band are striking features, and beginning falconers find the species easy to train, for they are relatively docile when handled.

During this study, it is becoming evident that Kestrels can be of economic importance to

# People at the Arboretum



*Marty Pinnavaia*

Marty Pinnavaia, Tropical Greenhouse Gardener . . . In only six months at the Arboretum, Marty Pinnavaia has "found his niche" among the Arboretum's tropical plants, and sees his future at the Arboretum as one filled with gratification from an increased knowledge of plants.

Marty has a small greenhouse of his own which houses a varied collection of or-

chids and other epiphytes. He enjoys hiking, mountain climbing, gardening and landscaping, and takes a special interest in designing rock gardens.

After spending his childhood in Brooklyn and two years as an Army personnel sergeant in Williamsburg, Virginia, Marty chose country living over city life and moved to New Paltz where he enrolled in SUNY New Paltz to major in biology. After obtaining his BS degree, he became a biology teacher at the Mother Cabrini school in West Park, New York, where he taught for six years. He later attended Empire State College and earned a BS degree in lab technologies. He worked as a medical lab technologist at Arden Hill Hospital in Goshen through 1982.

Marty made his third major career change when he joined the Arboretum staff in January of this year. "Not many people can turn a hobby into a career," he says. "Without a doubt, I have found my niche, and I have found a very harmonious place to work, as well."

farmers and homeowners. Grasshoppers, beetles, dragonflies, house sparrows, starlings and damaging rodents, including meadow voles, are some of the pests and nuisance species eaten by this falcon. It is predicted that with a complete understanding of this bird's life cycles, management practices can be utilized to introduce Kestrels into areas where they can coexist with and benefit man.

A graduate student at the University of Massachusetts, Michael Fargione is being assisted in his project this summer by Amy Matthews, a student at Cornell University, and Korin Swanson of Drew University.

Space limitations prevent elaboration on individual research projects being pursued by college students this summer. In brief, those working with the Arboretum's Wildlife Department staff include Tom Carroll, SUNY Purchase, who is conducting a forest inventory of Harriman/Bear Mountain State Parks; Linda Pierson, also of SUNY Purchase who is studying human use patterns at Harriman/Bear Mountain State Parks; and Susan Dowd, a University of Vermont student who is continuing work begun in January on studies of deer damage in orchards and vineyards.

Working this summer in the Arboretum's Forest Genetics Department are Sandy Quick of Marist College and Tom Stewart, SUNY College of Environmental Science and Forestry. Both are working on the American elm hybridization project begun in 1975 by Dr. David Karnosky. Two students from Yale University, Neeloo Bhatti and Jennifer Haasler, are involved in a project to measure the effects of air pollution on the rural ecosystem, a cooperative project between the Arboretum and Yale University. Ann Clark, a recent graduate of Vassar College, is researching the impacts of the urban environment on street trees.

Working under the direction of Evolutionary Botanist Dr. Thomas Elias for the second

consecutive summer is Myla Hunt, a student at Cornell University. Myla is collecting data on birch (*Betula*) trees and is organizing the Arboretum's herbarium.

Two projects underway by Chemical Ecologist Dr. Clive Jones are serving as research projects for college students. Lisa Baillancourt, University of Connecticut at Storrs, and John LeGuyader, SUNY Stonybrook, are both involved in an ongoing study of sweet fern (*Comptonia*). Lisa is studying one aspect of *Comptonia* chemistry; John is researching the insect communities that feed on sweet fern. Both are working under fellowship grants from the Research Corporation. Dennis Caracciolo, a student at Dutchess Community College, is involved in a second chemical ecology study to research a population of gypsy moths in order to effectively predict gypsy moth damage. These college students, as well as those involved in summer study programs like one coordinated by the NYBG School of Horticulture, bring a genuine enthusiasm to the Arboretum, its staff and research programs. College students will continue to play vital roles in the Arboretum's development. As the New York Botanical Garden's Institute of Ecosystem Studies is established at the Arboretum under the direction of Academy of Sciences member Dr. Gene Likens, undergraduate and graduate students will be encouraged to work at the Arboretum either by supplementing Arboretum staff in ongoing programs or by initiating independent research projects.

During this month, several students from Cornell and Yale Universities will begin Institute of Ecosystem Studies research projects at the Arboretum as part of their graduate educations. These students, like others who have worked at the Arboretum, will help pave the way towards a better understanding of our environment, its pressures and needs, and the future roles we will play in the understanding of how ecosystems work.



# "Four Seasons at Cary" on Display August 17 - September 19

An artistic photodocumentation of the Cary Arboretum grounds in all seasons is the theme of an exhibit that will be on display beginning August 17 at the Plant Science Building.

Emil Keller, an Arboretum volunteer since July, 1981, will exhibit a series of 28 color photographs taken over a one-year period beginning in the spring of 1982.

The landscape scenes reproduced for this exhibit were originally photographed on Kodachrome film for use in multimedia slide presentations. Processed in-house by Mr. Keller as Cibachrome prints, the photographs depict an artist's view of nature and striking examples of the beauty found on the Arboretum grounds year-round.

A Millbrook resident, Emil Keller worked for Ernst Leitz, Inc. for over 40 years. His professional interests in scientific instruments and photographic equipment introduced him to the Cary staff as the Arboretum was developing in the early 1970's. His photographic exhibit "Seeing in Light and Color" was exhibited at the Arboretum in March, 1982.

A gallery reception will be held Sunday, August 21, 1:30-4:00 p.m. in the Arboretum's Plant Science Building, Route 44A.

## At a Glance . . .

### Through August 15

"A Close Look at Nature: Impressions of an American Artist" - Wildlife and landscape paintings by Jack Lashway. Plant Science Building, Route 44A.

### July 18, 19 and 20

Nature at Cary for children ages 4-6. 9:30-11:30 a.m. at the Gifford House, Route 44A. Pre-registration required.

### August 1-5

Nature at Cary for children ages 7-10. 9:00 a.m. to noon at the Gifford House, Route 44A. Pre-registration required.

### August 21

Gallery Reception, 1:30-4:00 p.m., Plant Science Building. "Four Seasons at Cary" - Photographs by Emil Keller. Through September 19.

### August 25

Daytrip to West Point. Bus departs from Gifford House 7:45 a.m. Call (914) 677-5358 for additional information.

### August 30-September 1

Garden Holiday at the Mohonk Mountain House. Call (914) 677-5358 for details.

### September 1

Mushrooms For the Beginner: Introduction to Mushrooms, 6-8 p.m. Gifford House.

### September 6

Mushrooms For the Beginner: Mushroom Identification, 6-8 p.m. Gifford House.

### September 10

Mushrooms for the Beginner: A Mushroom Walk with Gary Lincoff. 10 a.m.-1:30 p.m. Gifford House.

## Children's Summer Program Open for Registration

For the fourth consecutive summer, children can get a close-up look at nature through the Arboretum's Children's Summer Program conducted at the Gifford House, Route 44A.

A three-session program for children ages four through six begins July 18, 9:30 to 11:30 a.m. Nature games and crafts, Indian tales, an ecology walk and studies of wildlife will be included in the program. Smokey the Bear will make a special appearance and the importance of forests and wildlife will be discussed.

Children ages seven to ten are invited to join a five-session program beginning August 1, 9:00 a.m. to noon. Included in the program

will be a hike through the Arboretum's beautiful Canoe Hills, studies of stream life, wildflowers and wild foods, a "Bug Day" and more.

Both programs will be conducted by Arboretum Education Coordinator Dr. Peter Dykeman, Arboretum volunteer Marie Dow, and Assistant to the Coordinator of Education Jean Bartoes.

Fees for the programs are \$15 for children ages four through six, and \$27.50 for children ages seven through ten. To register, call the Arboretum's Gifford House, (914) 677-5358.



### PLEASE!

Don't collect plants, insects, wildlife or rocks on the Arboretum grounds!

**THE CARY ARBORETUM**  
of  
**THE NEW YORK**  
**BOTANICAL GARDEN**

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